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PATENT & TRADEMARK OFFICE

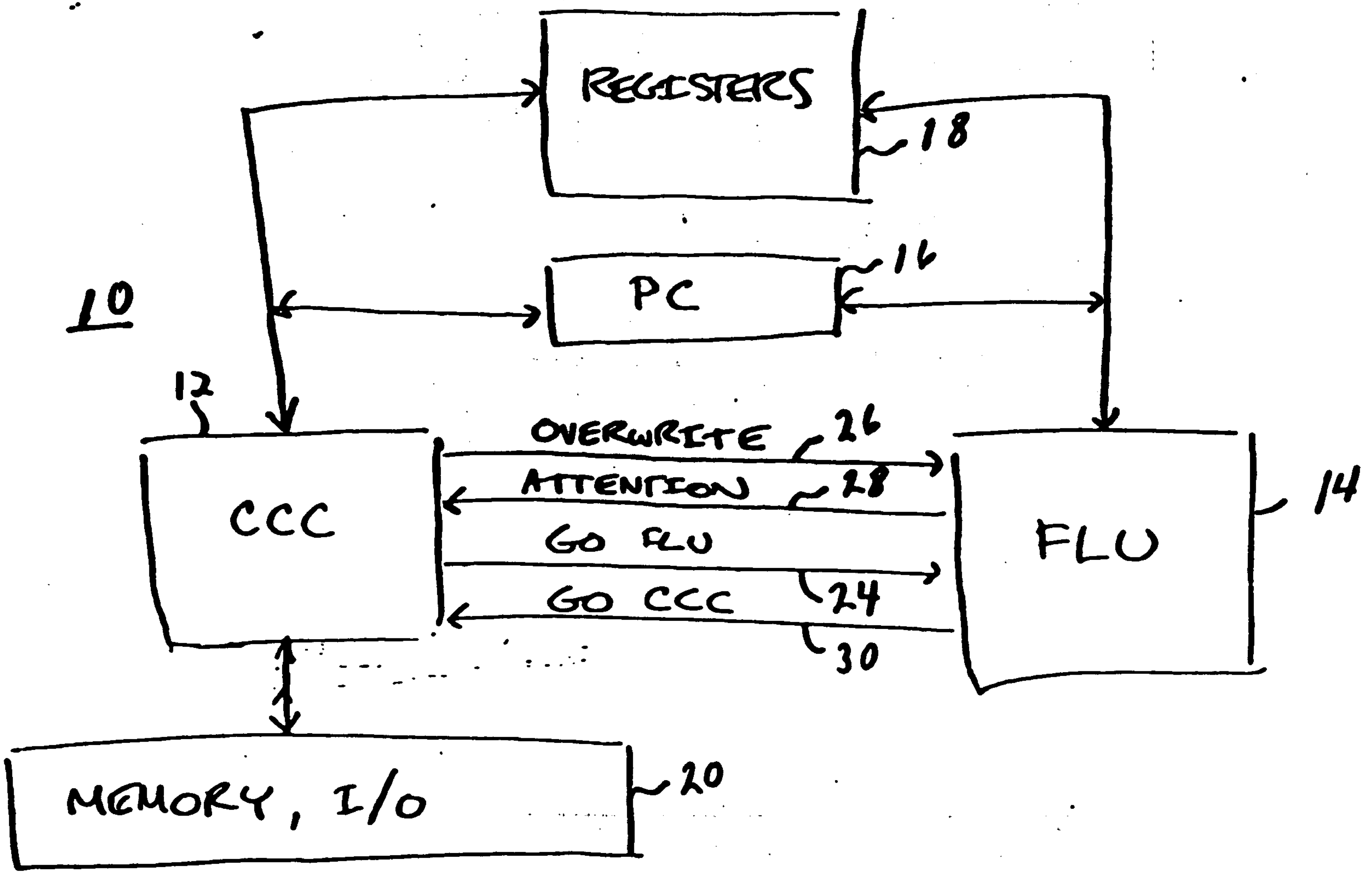


FIG. ~~Figure~~ 1. ~~Conventional CPU Core (CCC) and Function Lookup Unit (FLU) take turns advancing the volatile state of the CPU, which they share.~~

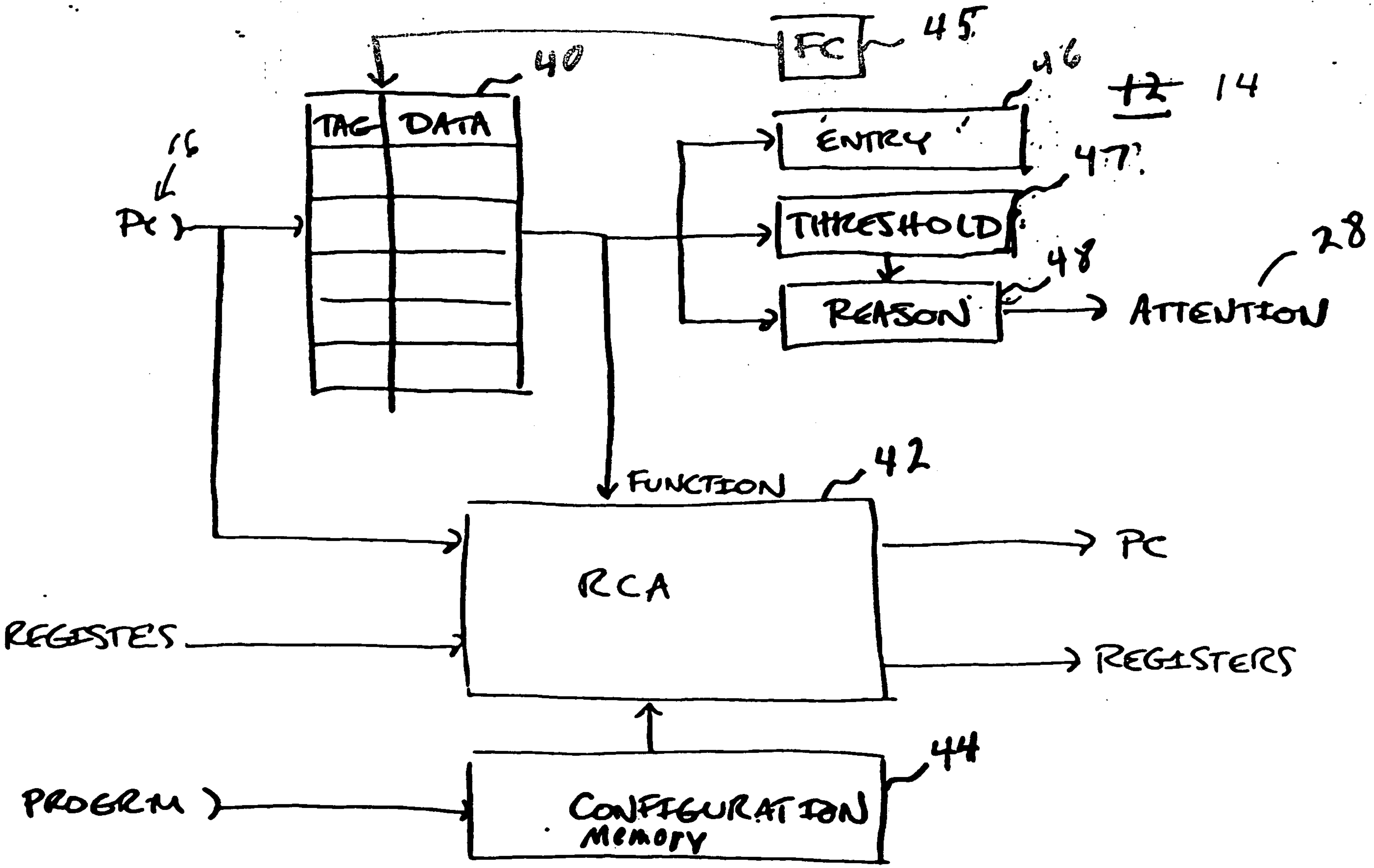
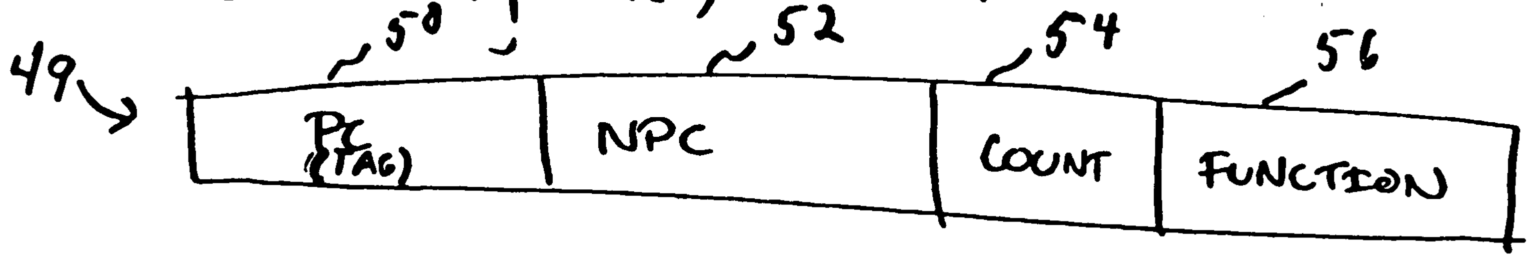


FIG.
~~Figure~~ 2. Detail of FLU. ~~After being presented with a PC marking the entrance to a block, the FLU either executes the block via the~~ RCA ~~(function bit), notes the entrance in the cache (entrance bit), or requests attention from the OCC.~~

~~Cache entry (line) Detail:~~



~~PC - program counter for beginning of code block. Used as a tag for the line.~~

~~NPC Next PC (address) after the end of the code block.~~

~~COUNT - count of times this PC was presented to FCU by CEG after cache entry created.~~

~~FUNCTION - index of function to present to function selector of REA in order to execute this block. Certain distinguished value(s) will indicate no function present.~~

FIG. ~~Figure~~ 3 Cache ENTRY line detail.

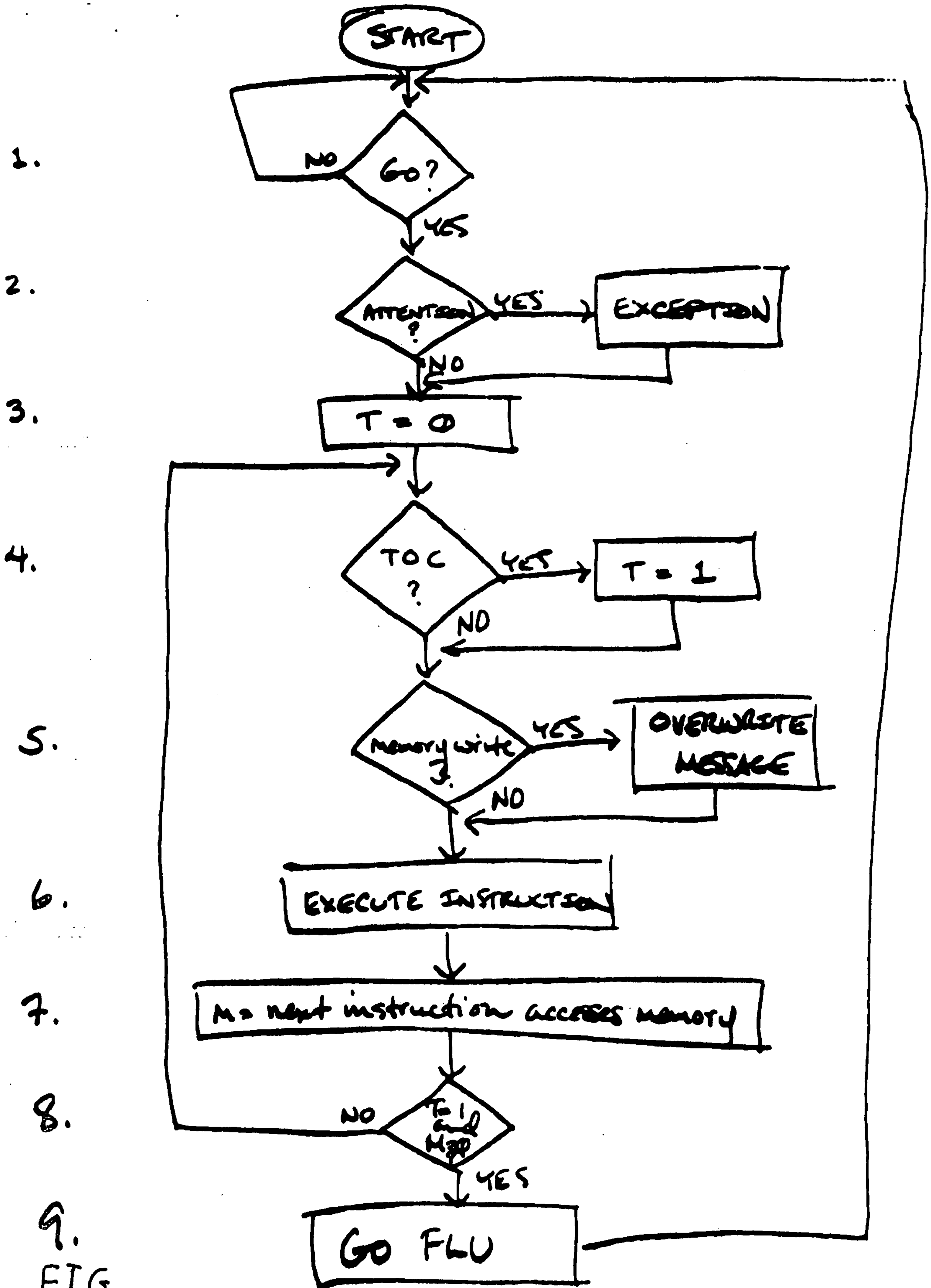


FIG.
~~Figure 4a.~~ CCC Flow

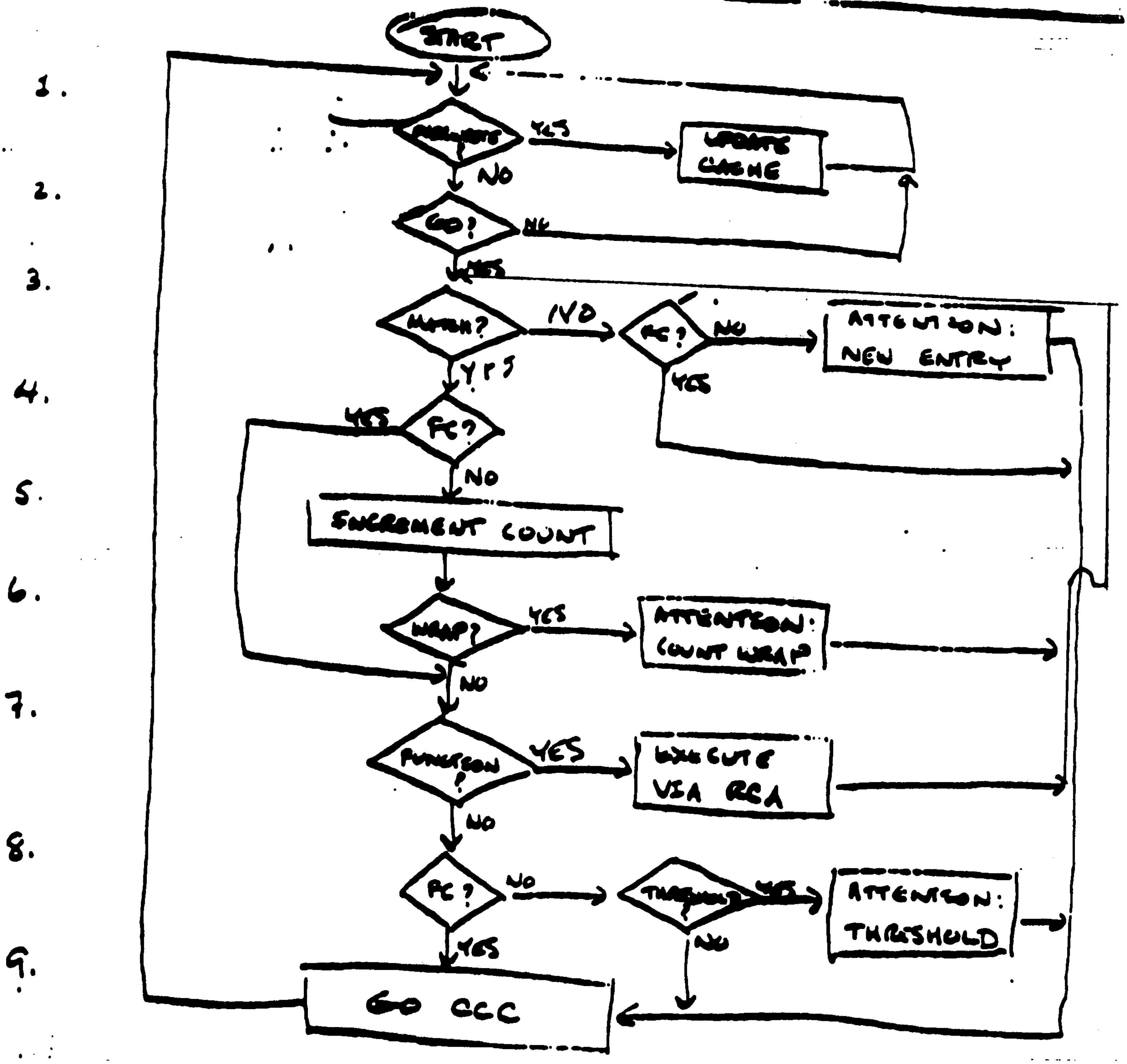


FIG.
~~Figure~~ 5 FLW Flow Diagram

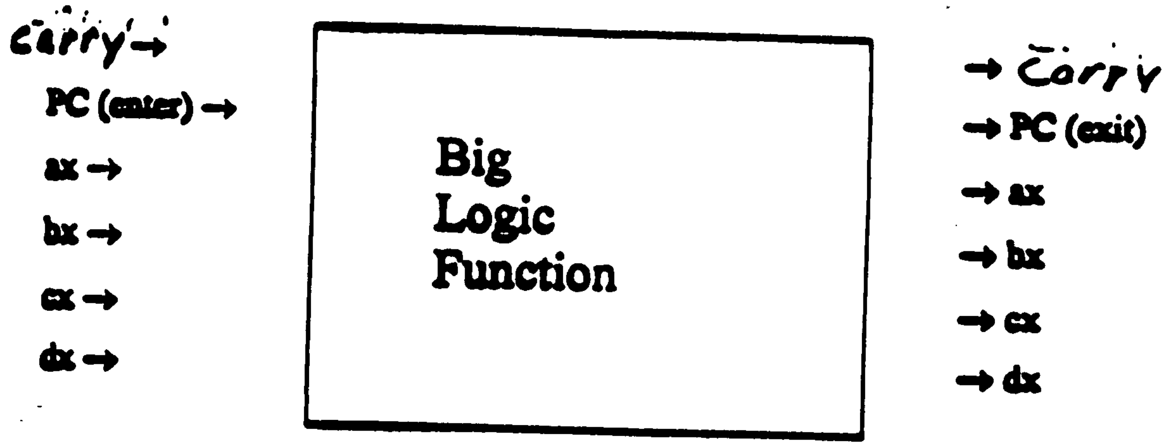

Carry
PC (enter)
ax
bx
cx
dx
Big Logic Function
Carry
PC (exit)
ax
bx
cx
dx

FIG. 6

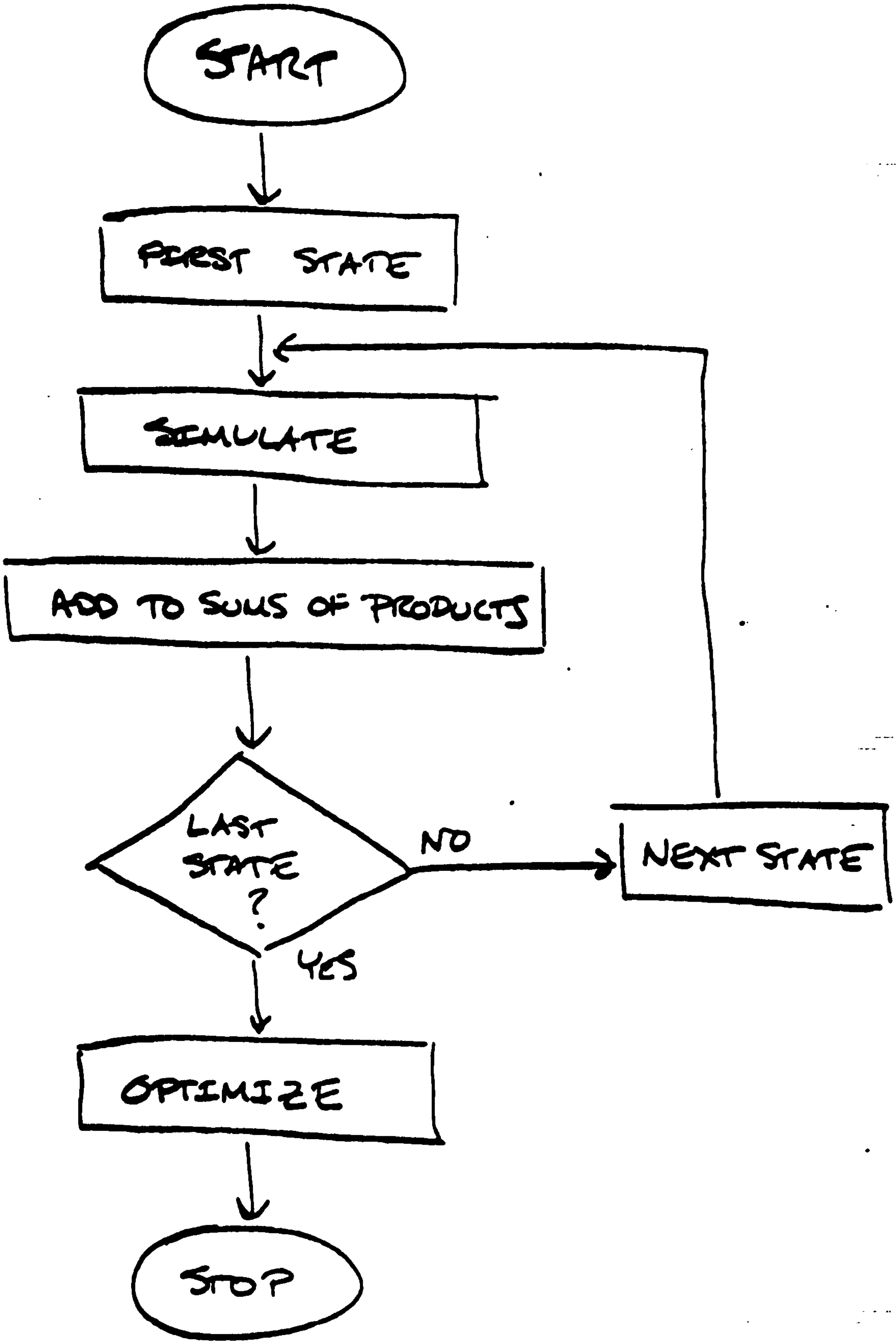


FIG.
~~Figure~~ 7A. Compiling by Exhaustive Enumeration

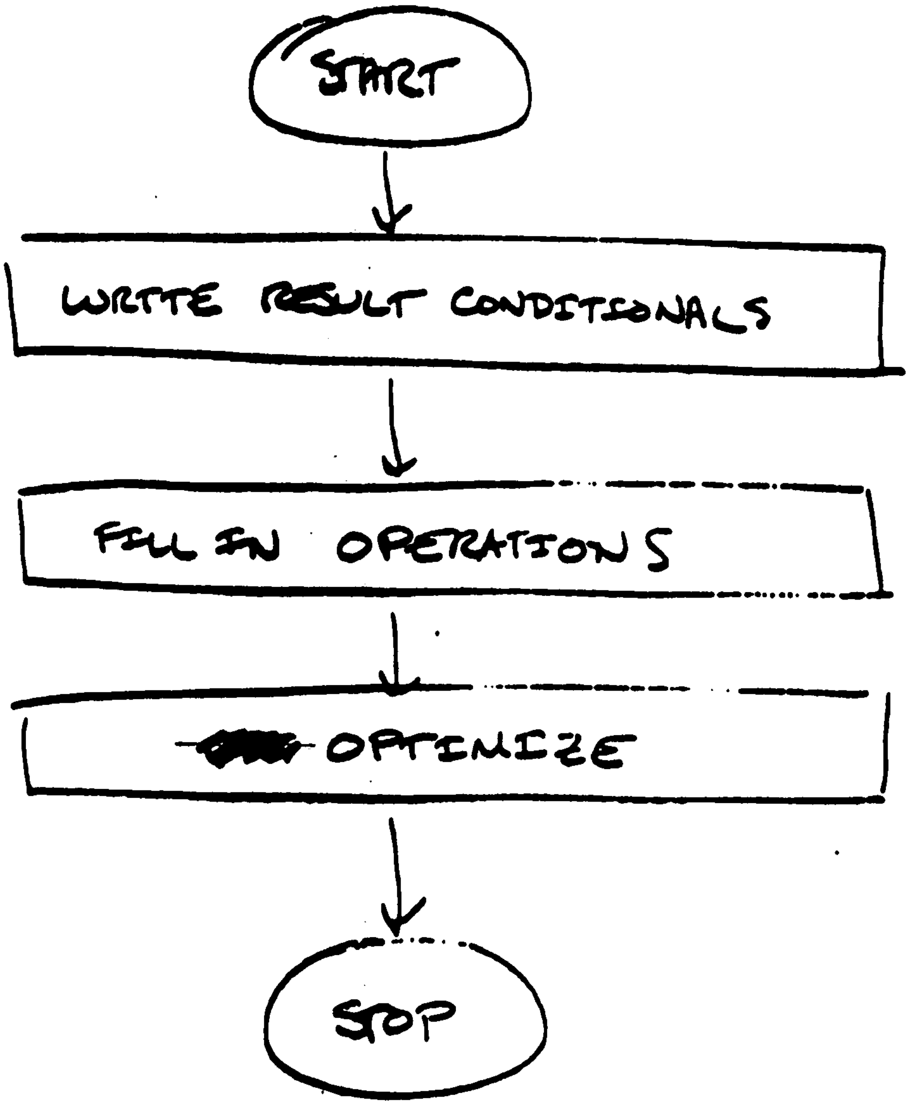


FIG.
~~Figure~~ 7B. Compiling by Conditional Expression Expansion

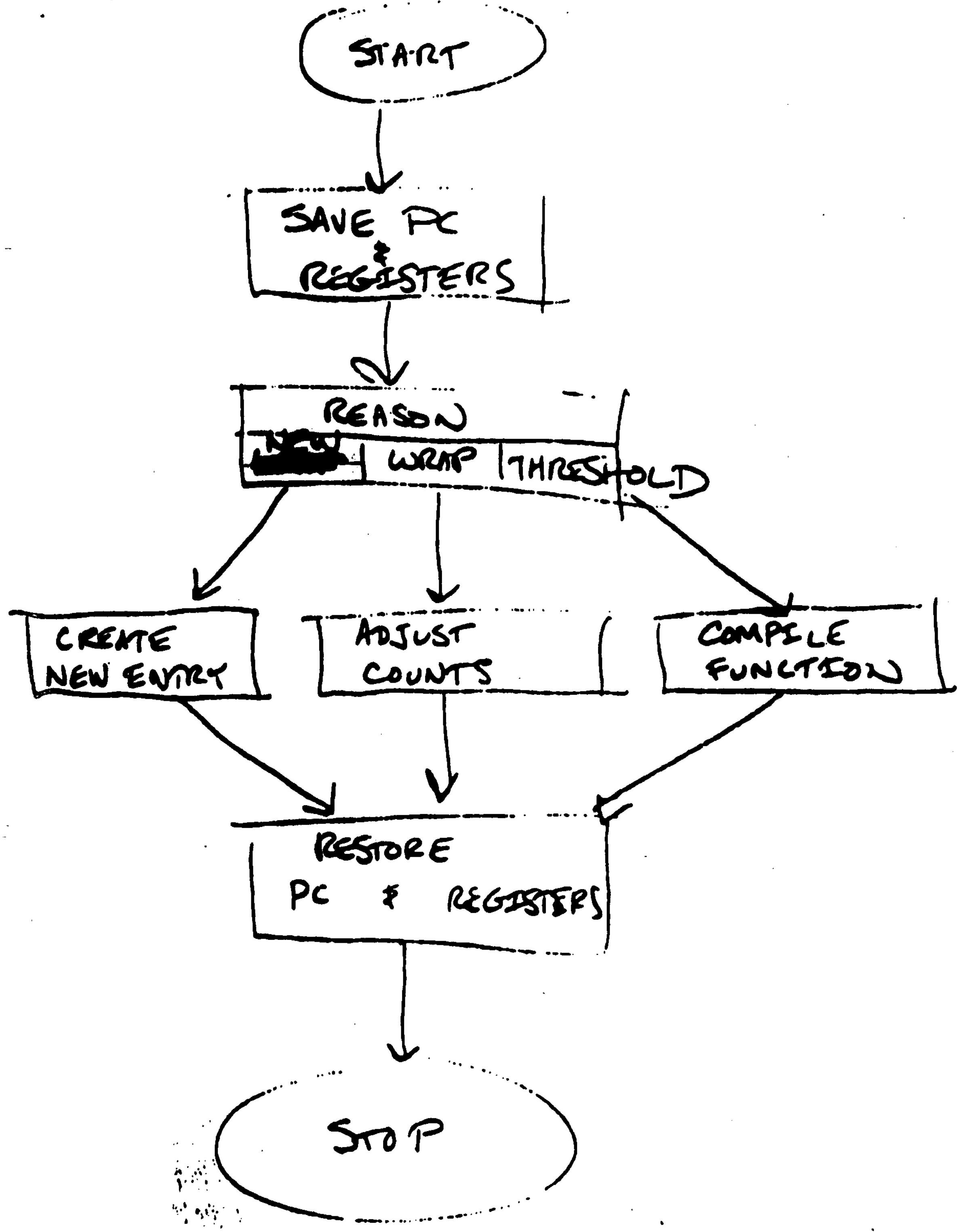


FIG. ~~Figure 22~~ 8 Exception routine flow

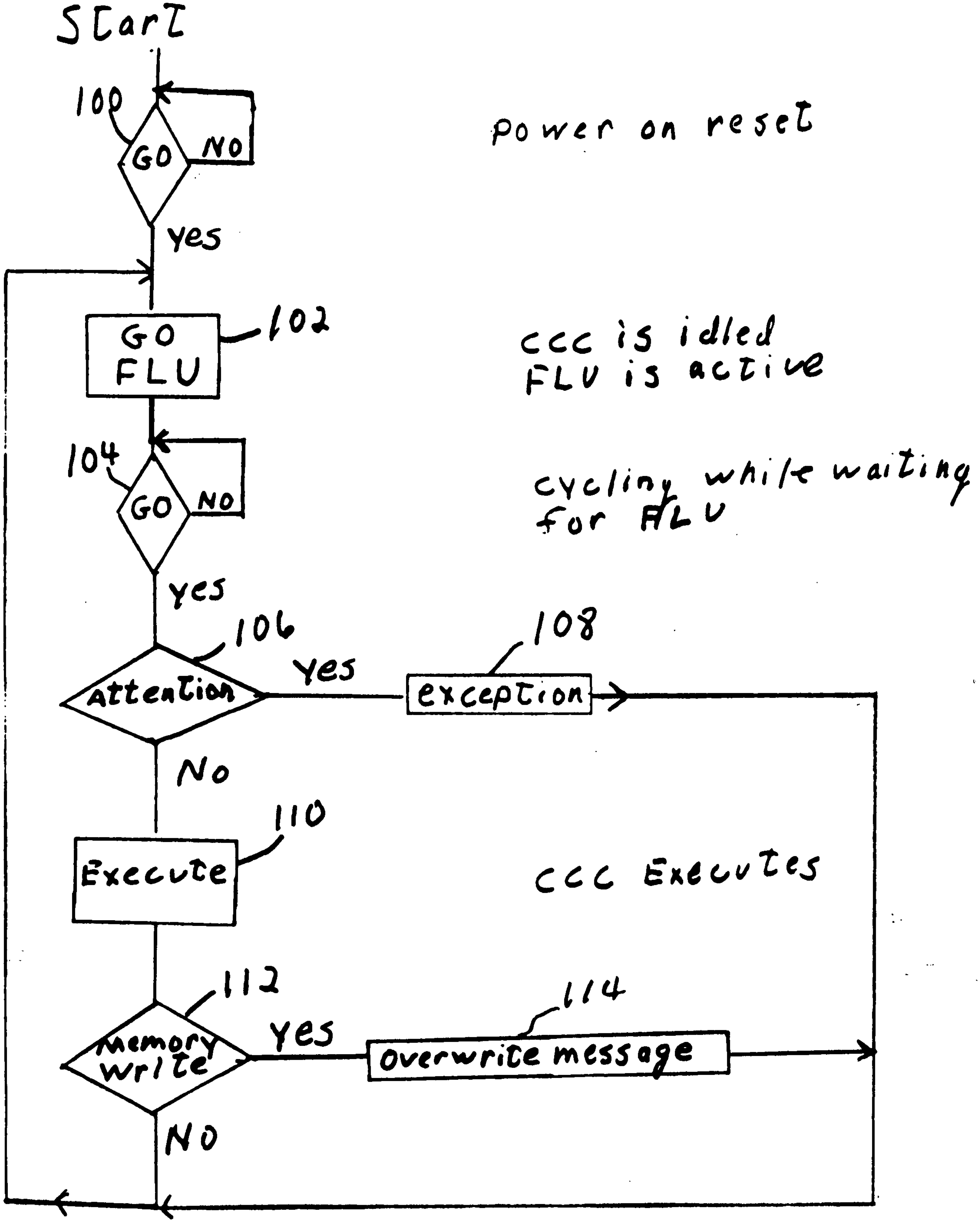
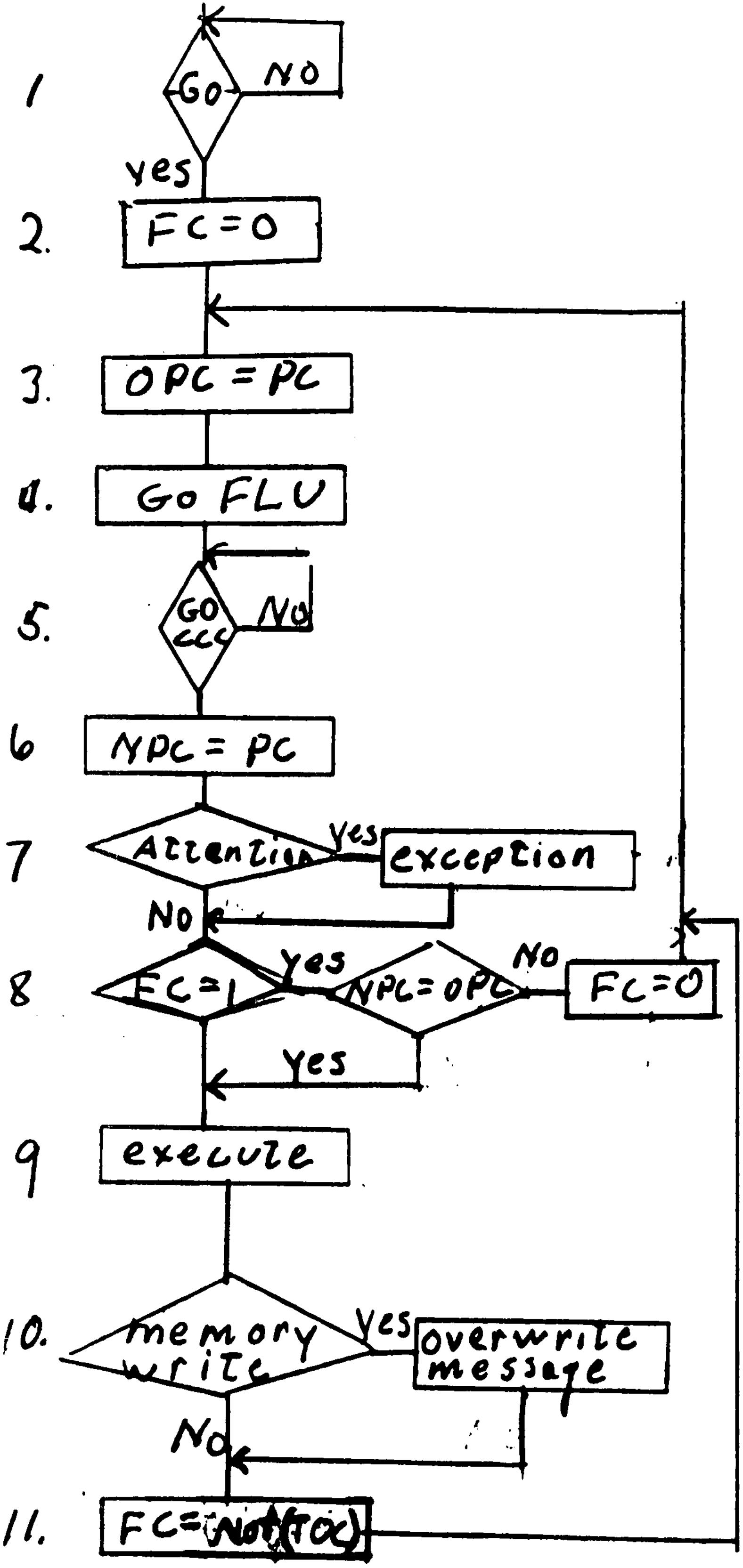

Start
100
GO
NO
yes
power on reset
GO FLU
102
ccc is idled
FLU is active
104
GO
NO
cycling while waiting for FLU
yes
106
Attention
yes
108
exception
No
110
Execute
ccc Executes
112
Memory write
yes
114
overwrite message
NO

FIG. 9



1. Remain idle until given first Go (Reset) signal.

2. Initialize FLU "freeze cache" state to "not frozen".

3. Save current PC in OPC.

4. Idle CCC and send GO signal to FLU.

5. Wait for "Go CCC" from idle FLU.

6. Get new value of PC in NPC.

7. If FLU has signalled attention, process exception.

8. If the FLU cache is frozen, but NPC != OPC, indicating that a logical function was executed, un-freeze the cache and go to 3.

9. Execute the instruction at PC in the conventional way.

10. If the instruction wrote memory, send an overwrite message to the FLU. Proceed to 11.

11. Freeze the FLU cache if the last instruction is not a transfer of control, otherwise, un-freeze it. Go to 3.

FIG. 10